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NTIA REPORT 81-73
ADDENDUM

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Addendum to NTIA Report 81-73

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U.S. DEPARTMENT OF COMMERCE • National Telecommunications and Information Administration

Addendum to NTIA Report 81-73

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ADDENDUM TO NTIA REPORT 81-73

1. INTRODUCTION

Since the issuance of NTIA Report 81-73, "Guidelines to Telecommunications Interconnection Requirements for Message Input to the USPS E-COM System," by D. V. Glen, the United States Postal Service (USPS) has prescribed the operating conditions for the E-COM Service. This includes: 1) the elimination of the transfer of message-encoded magnetic tapes between Serving Post Offices (SPO's) via Express Mail and 2) setting the transmission characteristics (e.g., protocols, line speeds) for message input to the SPO's.

2. DESCRIPTION OF THE E-COM SERVICE

Customers are to submit messages directly to the destination city SPO via the communications carrier of their choice. The SPO's which serve surrounding ZIP code areas are located in 25 cities.

SPO's are connected to a Management Operations Center (MOC) through an administrative control network which is based on leased digital telecommunications circuits (Figure 1).

Messages that are accepted for entry in the USPS mailstream can be entered via telecommunications lines (public or private). Messages are originated at the user terminal (Figure 1, block A) for transmission to the SPO. Messages that are entered can be sent to a geographically local or remote SPO via transmission lines of the customer's choosing.

After the messages are received at the SPO, they are checked for data and format errors (Figure 1, block B). If errors are found, the messages are rejected and the customer is notified. If the messages are accepted, the processing system electronically sorts and stores the message data by ZIP codes.

At the destination SPO, incoming mail is then sequentially printed by 9-digit ZIP code, enveloped, sealed, and trayed to form an E-COM mail batch according to a prescribed schedule (Figure 1, block C). After the batch is formed, it is transferred to a SPO mail processing area where it is merged with other First Class Mail.

First Class Mail is then delivered by the USPS to the addressee as part of the regular mailstream.

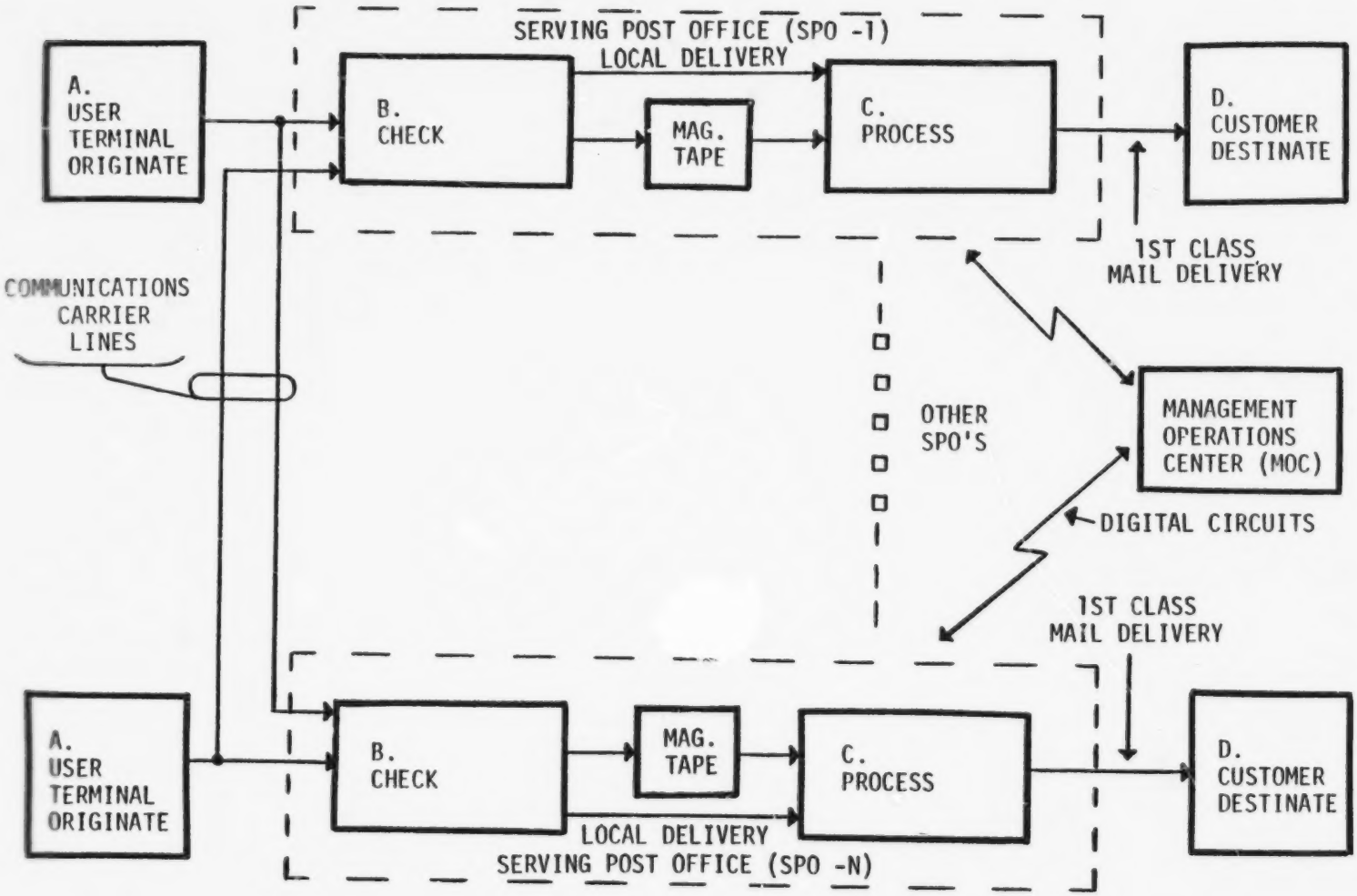

Figure 1. E-COM service operation.

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2.1 Message Types and Batch Size

The USPS is now listing three message types that will be processed at the E-COM SPO. The message types are:

a. Single address messages (SAM's); a message format embodying the destination address and text to produce one mailpiece.

b. Multi-address messages with a common text (COT's); a message format in which letters with identical text are sent to a number of addresses. The text need be submitted only once via a Primary Text Transmission (PTX).

c. Multi-address with a common text message into which variable data can be added (Text Insertion Messages, TIM's); a message format in which letters of a similar form may be sent to a number of addresses. A message skeleton is submitted once, then a destination address and unique information intended for individual addresses are submitted for each message.

The USPS requires that each transmission to a given SPO convey at least 200 messages. It is anticipated that the average number of alphanumeric characters per page will be 1200. Each letter can be of one or two pages, and each page will be 8-1/2 by 11 inches in size.

There is essentially no limit to the maximum number of messages that can be sent in each transmission to the SPO.

3. INTERCONNECTION STANDARDS USED

The layering concepts of the International Organization for Standardization (ISO) Open Systems Interconnection (OSI) reference model are still appropriate. Using guidelines identified in NTIA Report 81-73, the following interface and transmission protocols, and line speeds are to be used for message submission via telecommunications to the E-COM service SPO.

1. Asynchronous transmission, compatible with TTY ASR type data terminals (capable of responding to XON/XOFF characters) or equivalent, over dial-up access lines will use:

   a. the American National Standard Code for Information Interchange (ASCII), ANSI X3.4-1977,

   b. operating full-duplex mode, at

c. 300 and 1200 b/s signaling rate, while entering information from an on-line storage device.

2. Binary synchronous communication (BSC), compatible with IBM 2780 and 3780 terminals, or devices which emulate those characteristics will use:

   a. the Extended Binary Coded Decimal Interchange Code (EBCDIC),

   b. operating in the half-duplex mode as required by BSC, at

   c. 2400 and 4800 b/s on dial-up or private line access, 9600 b/s on private line access.

3. The Digital Data Communications Message Protocol (DDCMP) over private line connections will use:

   a. the American National Standard Code for Information Interchange (ASCII), X3.4-1977,

   b. operating full-duplex mode, at

   c. 2400, 4800, 9600, and 56,000 b/s.

4. The X.25-based packet switching will be provided for private-line access via a value-added carrier. The Link Access Procedure (LAP) with BSC framing will be used at signaling rates of 2400, 4800, and 9600 b/s. The character codes used shall be ASCII and EBCDIC.

The EIA RS-232-C interface will be used for Data Terminating Equipment/Data Circuit Terminating Equipment (DTE/DCE) interfaces operating at signaling rates of 300, 1200, 2400, 4800, and 9600 b/s. The CCITT Recommendation V.35 will be used for a signaling rate of 56,000 b/s. See Table 1 for a summary.

Other transmission and interface standards (e.g., RS-449) can be considered when appropriate in the future.

4. CERTIFICATION

Prior to initial message submission to the E-COM Service, the customer interface equipment and procedures must be certified by successfully passing valid telecommunications traffic to the USPS Test and Development facility located at Rockville, MD. This facility is equipped to provide an analysis of the test submission to assure trouble free use of the E-COM service after certification is complete.

Table 1. Summary of E-COM Service Transmission Characteristics

Protocol	Asynchronous	BSC	X.25 (1)	DDCMP
Line Speed (b/s)	300, 1200	2400, 4800, 9600	2400, 4800, 9600	2400, 4800, 9600, 56,000 (2)
Code	ASCII	EBCDIC	ASCII, EBCDIC	ASCII
DTE/DCE Interface (at SPO)	RS-232-C	RS-232-C	RS-232-C	RS-232-C, V.35 (3)

Notes: (1) LAP, with BSC framing.
(2) Upon customer request.
(3) For use with 56 kb/s.